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KARYOTYPE OF *CONOMYRMA FLAVA* (MCCOOK) (HYMENOPTERA: FORMICIDAE)[1]

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Abstract.—The karyotype (2N = 26) of the ant *Conomyrma flava* is reported from material collected in central Texas. The chromosome numbers and morphology match those of *Conomyrma bicolor* from the western U.S.A. more closely than those of *Conomyrma* spp. from Peru and Brasil. A lactic acid dissociation, air-drying technique with Giemsa staining for ant chromosomes is described.

Conomyrma Forel and all its species were considered to belong in *Dorymyrmex* Santschi, until Kusnezov (1952) separated the two genera, *Dorymyrmex* and *Conomyrma.* He further divided *Conomyrma* into two subgenera, *Biconomyrma* Kusnezov and *Conomyrma.* Although these subgenera subsequently were elevated to generic status by Kusnezov (1959), *Biconomyrma* was later synonymized with *Conomyrma* by Snelling (1973).

The taxonomy of the North American *Conomyrma* species is uncertain, and the genus is in need of revision. Snelling (1973) synonymized all but three of the nominal taxa from the U.S.A. One species, *C. insana* (Buckley), cannot be recognized with certainty because the type material is lost (J. C. E. Nickerson and J. C. Trager, pers. comm.) and the original description (Buckley, 1866) is vague. *Conomyrma flava* (McCook) was synonymized with *C. insana* by Snelling (1973), but has since been determined to be a valid species by the late William F. Buren (J. C. Trager, pers. comm.). We use the name *C. flava* for the specimens reported here and have deposited voucher specimens, as indicated below, for later study.

Apparently unaware of the taxonomic changes proposed by Kusnezov (1952), Crozier (1968, 1970) reported the karyotypes of the following three species of *Conomyrma*: *Dorymyrmex bicolor* (Wheeler), *Dorymyrmex ?thoracius* (Santschi), and *Dorymyrmex ?pulchellus* (Santschi) (=*Dorymyrmex* sp. in 1968 paper). Two of the species reported by Crozier are from South America, whereas *C. bicolor* is from the U.S.A. We herein report the karyotype of a second *Conomyrma* sp. from North America.

MATERIALS AND METHODS

Workers and brood of *Conomyrma flava* (McCook) collected at Camp Verde, Kerr Co., Texas, were maintained in the laboratory until suitable material (last instar larvae) became available. Slides were prepared from five larvae and scored for diploid number and centromeric position.

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The larval heads were removed and opened in hypotonic solution. A 1% sodium citrate and 0.075 M KCl hypotonic solutions were used for times from 5 to 30 minutes, respectively. Although all preparations were similar in chromosome spacing among individual spreads, the best results were obtained using 0.075 M KCl solution for 15 to 20 minutes. The heads were fixed in Carnoy's fixative (3:1 absolute methanol: glacial acetic acid) for 30 minutes and then placed in a drop of dissociate solution (3:1 glacial acetic acid: 85% lactic acid) on the middle of a clean dry microscope slide. Maceration of tissues with a pin and forceps aided dissociation of cells within the dissociate solution. The dissociate solution will destroy the preparation if left in contact with the cells for more than a couple of minutes. The moment the cells became transparent to the unaided eye, three or four drops of fixative were dropped onto the dissociated cell solution, and the slides were tilted back and forth several times to spread the solution. After that, any remaining solution was poured off and the slides were air dried for 24 hours, and then stained for 10 minutes in 6% Giemsa stock solution in .15 M Sorenson's buffer (pH 6.8). The above procedure is similar to that proposed by Crozier (1968), differing mainly by the use of lactic acid dissociation and Giemsa staining. The cells were not treated with colcemid or colchicine as we, like Mehlhop and Gardner (1982), found this step unnecessary and we were concerned with possible alterations of the karyotype by these agents as indicated by Smith (1965).

Centromere classification follows that of Levan et al. (1964) as modified by Crozier (1970).

The slides are not coverslipped and are numbered TTU Prep. #32-42. A voucher series of the preserved workers and brood are deposited in the Entomological Collection, The Museum, Texas Tech University (cat. no. 6476).

RESULTS AND DISCUSSION

The normal diploid chromosome number of the somatic head cells (presumably cerebral ganglia) of five worker larvae was 2N = 26. A total of seventeen cells from the five specimens were examined with no variation in counts. The karyotype (Fig. 1) consists of a pair of large subacrocentric, two pairs of medium metacentric, and 10 pairs of submetacentrics-to-subacrocentrics ranging in relative size from medium to small.

The chromosome number of 2N = 26 for *C. flava* is identical to that of *C. bicolor* reported by Crozier (1970, Fig. 1D), both species being from western North America. By contrast, the two species from Peru and Brasil, *C. ?thoracica* and *C. ?pulchella,* respectively, have 2N = 18 (Crozier, 1970, Fig. 1E, F). The karyotypes of both South American species consist of a single pair of large metacentrics or submetacentrics (almost subacrocentrics) and eight medium-sized metacentric chromosome pairs. In contrast, the karyotypes of the two North American species consist of a pair of large acrocentric-to-subacrocentric, two or five pairs of medium-sized metacentrics, and 10 or seven pairs of acrocentrics-to-submetacentrics ranging in size from small to medium.

The differences noted here and in karyotypes by Crozier (1970) suggest two separate groupings; however, these groups do not correspond to the genera/subgenera proposed by Kusnezov (1952, 1959). Many more karyotypes and a thorough taxonomic re-

Fig. 1. Karyotype of *Conomyrma flava* (McCook), 2N = 26.

vision of *Conomyrma* spp. will be necessary to determine trends of karyotypic evolution in this genus.

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